REMARKS

Applicants amended claim 36, support for the amendment can be found at page 7, lines 5-6. The amendments set forth above generally mirror a previous amendment to claim 22 and thus should raise no new issues that would require further consideration and/or search. Applicants submit that these amendments would place the claims into condition for allowance, or at least present the rejected claims in better form for consideration on appeal, and should therefore be entered after the final rejection under 37 C.F.R. 1.116. Claims 1-20, 22-25, 27-34, 36-39, 41-50, and 52-60 are presented for examination.

Information Disclosure Statement

Applicants request consideration of the enclosed Information Disclosure Statement, which was originally mailed on May 8, 2007, but was not initialed by the Examiner.

Specification

The Examiner objected to the title of the application. Applicants amended the title to obviate this objection, so this objection should be withdrawn.

35 U.S.C. § 112

The Examiner rejected claim 36 for allegedly being indefinite. Applicants amended claim 36 to obviate this rejection, so this rejection should be withdrawn.

35 U.S.C. § 103

The Examiner rejected claims 1-20, 22-25, 27-34, 36-39, 41-50, and 52-60 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5, 543,249 ("Takeuchi") in combination with U.S. Application Pub. No. 5,543,249 ("Michel"), and further in combination with "Candidate material for the sulfur electrode current collector", Corrosion Science, Vol. 26, No. 5, pages 377-388, 1986" ("Tischer"); or further in combination with U.S. Patent No. 6,447,957 ("Sakamoto").

Claims 1-20, 22-25, 27-34, 36-39, 41-50, and 52-60 cover methods of making a cathode for a primary lithium battery, including pulling an expanded metal grid including aluminum and

an array of diamond shaped openings and having an initial tensile strength, to increase the short dimension and increase the tensile strength to greater than 5 lb/in. The pulled grid is then coated with a composition including a cathode active material. Dependent claims 22 and 36 require that the grid is leveled before coating by passing the grid between rollers.

The Examiner has incorrectly maintained the position that when a current collector is stretched (e.g., pulled), it is also leveled. Applicants explained the difference between stretching (or pulling) and leveling in the response to the January 8, 2007 Office Action. Specifically, leveling occurs by passing the grid between rollers to reduce the thickness of the grid, flatten it, and increase its temper by strain hardening. In contrast, pulling includes altering the grid dimensions, such as the short dimension, which can alter the current path through the grid and the resistivity in the machine direction and/or the cross direction. (See, e.g., application, page 7, lines 8-10). Further, as shown in Table 3 of the application, the grid thickness of a leveled grid at 14.7 mils compared to that of a pulled grid at 18.4 mils is clearly different. Therefore, pulling and leveling refer to different processes, and a current collector that is pulled or stretched is not simultaneously leveled. The Examiner has not provided a technical rationale regarding why in his view a current collector that is stretched, and not passed between rollers, is also leveled, a process which requires passing between rollers. Applicants respectfully request that the Examiner either allow dependent claims 22 and 36, or provide reasons for maintaining his position with regards to the term "leveling".

Turning to the 35 U.S.C. § 103(a) rejection, Takeuchi does not disclose or suggest the subject matter covered by claims 1-20, 22-25, 27-34, 36-39, 41-50, and 52-60. Instead, Takeuchi discloses an expanded metal grid formed of titanium or aluminum, but does not disclose pulling or leveling an expanded metal grid including aluminum and an array of diamond-shaped openings.

Michel also does not disclose or suggest pulling a grid having an array of diamond-shaped openings to increase the short dimension and increase the tensile strength to greater than 5lb/in, nor does he disclose leveling a current collector prior to coating by passing the current collector through rollers. Instead, Michel discloses forming his current collector by stretch-forming following perforation. (See, e.g., Michel, [0024].) The current collector is clamped into a stretch-forming press, which includes tongs and a stretching table, and the stretched current

collector is obtained by pulling apart the tongs. (See, e.g., Michel, [0036]). In contrast to claims 1-20, 22-25, 27-34, 36-39, 41-50, and 52-60, where the expanded metal grid is pulled in the *short dimension* to increase the tensile strength of the grid, Michel is silent with respect to the pulling direction and the tensile strength of his current collector. To the extent that his current collector current can be construed to have directionality, the current collector is pulled in the *long direction* to form continuous holes. (See, e.g., Michel, [0024], [0036], and FIG. 2).

Further, a person of ordinary skill in the art would not have been motivated to pull a grid current collector to increase its tensile strength upon reading Michel as Michel is concerned with forming holes, nor would there be any expectation that the tensile strength would be increased if a person were somehow motivated to pull a grid current collector. In contrast to Michel, Applicants have demonstrated that by pulling the short dimension ("SWD"), the tensile strength unexpectedly increases compared to that of a current collector that has not been pulled. (See, e.g., application, page 10, Table 2). For example, in Table 2 of the application, the nominal grid long dimension ("LWD") remained unchanged for the pulled and the untreated grids, but the tensile strength increased from 3.3 lb/in to 5.8 lb/in or 8.68 lb/in when the grids were pulled along the short dimension.

The Examiner contends that it would have been obvious to modify Takeuchi's current collector by pulling with the expectation of achieving the benefits of increased surface area and tensile strength (office action, page 4). Applicant notes that the Examiner has failed to provide any technical explanation for this contention. Applicants respectfully request that the Examiner either withdraw the 35 U.S.C. § 103(a) rejection based on Takeuchi and Michel, or at least provide support for his position that the pulling benefits would be expected so that Applicants can review and address the Examiner's concerns.

Michel also does not disclose leveling the grid before coating by passing the grid between rollers. Thus, even if Michel is combined with Takeuchi, the method covered by dependent claims 22 and 36 is not achieved. The 35 U.S.C. § 103(a) rejection of claims 22 and 36 should be withdrawn for this reason as well.

Tischer does not fill the gaps in Takeuchi and Michel, discussed previously, at least because Tischer does not disclose or suggest pulling or leveling a grid having an array of diamond-shaped openings to increase the short dimension and increase the tensile strength to

greater than 5 lb/in. Instead, Tischer discloses an aluminum-silicon carbide composite for use in sodium-sulfur batteries. (See, e.g., Tischer, page 377, Introduction).

Similarly, Sakamoto does not fill the deficiencies in Takeuchi, Michel, and/or Tischer, at least because Sakamoto does not disclose or suggest pulling or leveling a current collector to increase the short dimension and increase the tensile strength to greater than 5 lb/in. Instead, Sakamoto discloses a current collector having etched throughholes for use in secondary batteries.

In sum, none of Takeuchi, Michel, Tischer, or Sakamoto, discloses or suggests the methods covered by claims 1-20, 22-25, 27-34, 36-39, 41-50, and 52-60, and there is no suggestion to combine these references to provide the methods covered by these claims. Further, even if the references were combined, the resulting methods still would not be the subject matter covered by the claims. Therefore, Applicants respectfully request that the § 103(a) rejection of these claims be withdrawn.

Applicants believe the claims are in condition for allowance, which action is requested.

Please apply any charges to deposit account 06-1050.

Respectfully submitted,

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